

**We Claim:**

1. An optical-waveguide cable for transmitting optical signals according to wavelength division multiplex technology, said cable comprising of at least one first section (a), which has fibres of a first type (H), and at least one second section (b), which has fibres of a second type (N), the fibres of the first type (H) being connected to the fibres of the second type (N) at at least one transition point (U) between the first and second sections (a, b), and the fibres of the first type (H) being designed in such a way that they have a larger mode field diameter and a higher dispersion than the fibres of the second type (N).
2. The optical-waveguide cable according to Claim 1,  
wherein the second section (b) is arranged between two first sections (a).
3. The optical-waveguide cable according to Claim 1,  
wherein the fibres of the first type (H) have a mode field diameter of more than 8  $\mu\text{m}$  at a wavelength of 1550 nm.
4. The optical-waveguide cable according to Claim 1,  
wherein the fibres of the second type (N) have a mode field diameter of more than 6  $\mu\text{m}$  at a wavelength of 1550 nm.
5. The optical-waveguide cable according to Claim 1,  
wherein the mode field diameter of the fibres of the second type (N) is less than 3  $\mu\text{m}$  smaller than the mode field diameter of the fibres of the first type (H).
6. The optical-waveguide cable according to claim 1, wherein  
the fibres of the first type (H) have a mode field diameter of more than 8  $\mu\text{m}$  at a wavelength of 1550 nm, and  
the fibres of the second type (N) have a mode field diameter of more than 6  $\mu\text{m}$  at a wavelength of 1550 nm, and  
the mode field diameter of the fibres of the second type (N) is less than 3  $\mu\text{m}$  smaller than the mode field diameter of the fibres of the first type (H).

7. The optical-waveguide cable according to Claim 1,  
wherein the dispersion of the fibres of the first type (H) is between 12 ps/(nm·km) and 22 ps/(nm·km) in a transmission band of from 1525 nm to 1625 nm.
8. The optical-waveguide cable according to Claim 1,  
wherein the dispersion of the fibres of the second type (N) is between 0 ps/(nm·km) and 12 ps/(nm·km) in a transmission band of from 1525 nm to 1625 nm.
9. Optical-waveguide cable according to Claim 1, wherein  
the dispersion of the fibres of the first type (H) is between 12 ps/(nm·km) and 22 ps/(nm·km) in a transmission band of from 1525 nm to 1625 nm, and  
the dispersion of the fibres of the second type (N) is between 0 ps/(nm·km) and 12 ps/(nm·km) in a transmission band of from 1525 nm to 1625 nm.
10. The optical-waveguide cable according to Claim 1,  
wherein a transition piece (T) is provided at the transition point (U) between the fibres of the first type (H) and the fibres of the second type (N), and gradually reduces the core diameter of the fibres of the first type (H) over a predetermined length to the core diameter of the fibres of the second type (N).
11. The optical-waveguide cable according to Claim 1,  
wherein the first and/or the second section (a, b) are/is provided both with fibres of the first type (H) and with fibres of the second type (N).
12. The optical-waveguide cable according to Claim 9,  
wherein the fibres of the first type (H) and the fibres of the second type (N) are arranged in groups that are separated from one another.
13. The optical-waveguide cable according to Claim 10,  
wherein the fibres of the first type (H) and the fibres of the second type (N) are in each case designed as fibre bundles, fibre ribbons or bundle cores.

14. A method for transmitting optical signals according to wavelength division multiplex technology, in which method the optical signals to be transmitted are coupled into fibres of a first type (H), which are provided in a first section (a) of an optical-waveguide cable, and, after a specific transmission path, are conducted into fibres of a second type (N), which are provided in a second section (b) of the optical-waveguide cable, the fibres of the first type (H) being connected to the fibres of the second type (N) at at least one transition point (U) between the first and second sections (a, b), and the fibres of the first type (H) having a larger mode field diameter and a higher dispersion than the fibres of the second type (N).
15. The method according to Claim 12,  
wherein, after a specific transmission path through the fibres of the second type (N) of the second section (b), the optical signals to be transmitted are conducted into fibres of the first type (H) of a further first section (a).
16. The method according to Claim 12,  
wherein the optical waveguides of the optical-waveguide cable are coupled by a pigtail or a patch cable to a transmitter (S), a receiver (E), or an amplifier (V) provided between the transmitter (S) and the receiver (E).